

AMENDMENT

IN THE SPECIFICATION:

Please amend the title as follows: **ASSEMBLY ASSEMBLY FOR ATTACHING A
WINDOW REGULATOR MOTOR TO A WINDOW REGULATOR MECHANISM
THROUGH A DOOR PANEL**

Please amend paragraph 1 as follows:

The present invention relates to assemblies, and in particular door panel assemblies of land vehicles such as cars (automobiles).

Please amend paragraph 4 as follows:

A drive mechanism is attached to the other side (the 'dry' side) of the panel opposite to, and in driving ~~co-operation~~cooperation with components of the window regulator housing. The drive mechanism can ~~comprise~~include a manual arrangement or a powered motor arrangement.

Please amend paragraph 6 as follows:

An object of the present invention is to provide an improved form of aligning a first, second and third component of an assembly. The invention is particularly applicable to aligning a window regulator housing (a second component) with a drive mechanism (a third component) when these two components are formed as an assembly with a door panel (a first component). It should be noted that the invention is however applicable to other assemblies ~~where~~where alignment of ~~the~~ components is required.

Please amend paragraph 7 as follows:

A further object of the present invention is to provide an improved method of assembling [[a]] the first, second and third component. A further object of the present invention is to provide an improved form of partially disassembling a first, second and third component of an assembly.

Please amend paragraph 8 as follows:

Thus, according to the present invention, there is provided an assembly including a first, second and third component having respective first, second and third holes, ~~the~~. The assembly further ~~including~~includes a locating ~~means~~feature assembled into the first, second and third holes, ~~the~~ locating ~~means~~ having at least a small diameter cylindrical portion which is concentric relative to a large diameter cylindrical portion to provide a shoulder, ~~the~~. The locating ~~means~~feature further ~~including~~includes a fixing portion proximate the small diameter portion for securing the second component relative to the assembly and a fixing portion proximate the large diameter portion for securing the third component relative to the assembly, ~~in which the~~. The small diameter cylindrical portion is located in the second hole ~~in order~~ to align the locating ~~means~~feature relative to the second component, and a large diameter portion is located in the third hole ~~in order~~ to align the locating ~~means~~feature relative to the third component, thereby aligning the second component relative to the third component, ~~in which the~~. The first component is situated between the second and third component and also between the shoulder and the second component.

Please amend paragraph 11 as follows:

Figure 2 shows the locating ~~means~~feature of figure ~~Figure 1~~Figure 1; and

Please amend paragraph 12 as follows:

Figures 3 and 3A show an alternative form of ~~the~~ assembly according to the present invention.

Please amend paragraph 13 as follows:

~~With reference to~~ Figures 1 and 2 ~~there is shown~~ illustrate a door panel assembly 10 including a window regulator housing 12 (a second component), a door panel 14 (a first component) and a drive mechanism in the form of a window regulator motor 16 (a third component). In further embodiments, the drive mechanism could be in the form of a manual window winder.

Please amend paragraph 14 as follows:

~~Door~~The door panel 14 can be in the form of a door inner skin i.e., a pressed component having various holes and attachment features for components such as door hinges, door latch, audio speaker, window regulator motors, etc. Alternatively, ~~the~~ door panel 14 can be in the form of a door module panel i.e., a panel onto which ~~is pre-mounted~~ various components such as a window regulator motor, an audio speaker, a door latch, etc. ~~is pre-mounted with this~~ the pre-assembled door module being mounted in a relatively large aperture of a door inner skin.

Please amend paragraph 15 as follows:

~~Window~~The window regulator housing 12 might typically contain a drum around which ~~has been wound~~ a cable ~~is wound~~, ~~and~~ rotation of the drum ~~causing~~causes movement of the cable and hence raising and lowering of the window glass via separate components of the window regulator. Note that the present invention is not restricted to window regulators containing drums with cables.

Please amend paragraph 16 as follows:

In particular, ~~it~~ it ~~[[is]]~~ should be noted that the arrangement shown in Figure 1 enables power generated by the window regulator motor 16 to be transferred across the door panel to the window regulator to enable raising and lowering of the window. ~~Window~~The window regulator motor 16 includes a through hole 16A, and ~~the~~ door panel 14 includes a through hole 14A.

Please amend paragraph 17 as follows:

~~Window~~The window regulator housing 12 includes a blind hole 12A having a parallel sided portion 18 and a tapered portion 20. The large diameter end of the tapered portion 20 is smaller in diameter than the diameter of the parallel sided portion 18, ~~thus~~ providing a shoulder 22 in hole 12A. In further embodiments, ~~the~~ hole 12A could include a parallel sided portion in place of ~~the~~ tapered portion 20, preferably being of smaller diameter than ~~the~~ portion 18.

Please amend paragraph 18 as follows:

The assembly 10 also includes a locating ~~means~~feature 24 having a large diameter portion D and small diameter portion d which are concentric relative to each other. A shoulder 26 is provided between the large and small diameter portions ~~D, d~~. ~~At~~A ~~tapered threaded portion~~ 28 is ~~at~~ the end of the small diameter portion ~~d~~ remote from shoulder 26 ~~is a tapered threaded portion~~ 28. At the end of the large diameter portion ~~D~~ is a paralleled sided threaded portion 30 onto which ~~a nut~~ 32 can be screwed ~~nut~~ 32. ~~At~~A ~~slot~~ 31 is ~~at~~ the end of the threaded portion 30 remote from shoulder 26 ~~is a slot~~ 31.

Please amend paragraph 19 as follows:

It should be noted that the large and ~~the~~ small diameter portions ~~D, d~~ are designed to be concentric relative to each other. However, manufacturing techniques result in slight eccentricities of the large diameter portion ~~D~~ relative to the small diameter portion ~~d~~. However, the design of the large and small diameter portions ~~D, d~~ means that manufacturing techniques, such as turning, allow the eccentricities of the large and small diameter portions ~~D, d~~ be ~~minimised~~minimized. Note that manufacture of the locating ~~means~~feature 24 is not limited to making this component as a turned component.

Please amend paragraph 20 as follows:

The assembly 10 can be assembled in two distinct manners. ~~Firstly~~ In a first method of assembly, the window regulator housing 12 can be aligned relative to the door panel and the locating ~~means~~feature 24 (absent the nut 32) can be inserted through ~~the~~ hole 14A and ~~into the~~ hole 12A. The locating ~~means~~feature 24 can then be rotated by ~~means of~~ a screwdriver ~~engaging~~ that engages ~~the~~ slot 31 such that the tapered threaded portion 28 engages with the tapered portion 20 of hole 12A. In this case, the tapered portion 20 is initially plain sided i.e., it does not include threads, and as the locating ~~means~~feature 24 is screwed into the hole 12A, the tapered threaded portion 28 self taps a thread into the material of window regulator housing 12. ~~In particular the material of one example, the window regulator housing 12 can be a plastics material~~

is made of plastic. Such an arrangement provides for a subassembly comprising including the locating ~~means~~feature 24 which secures the door panel 14 to the window regulator housing 12.

Please amend paragraph 21 as follows:

It should be noted that the length L of the small diameter portion d can be slightly less than or slightly greater than the height H of the parallel sided portion 18 plus the thickness T of the door panel 14. The former case provides for a ~~sub-assembly~~subassembly in which the door panel 14 is clamped to the window regulator housing 12 ~~and the~~The latter case provides for an arrangement whereby the shoulder 26 abuts ~~the~~ shoulder 22, and the door panel 14 is not clamped relative to the window regulator housing 12. The window regulator motor 16 can then be assembled onto the large diameter portion D and the nut [[16]]32 can be threaded onto the threaded portion 30 and tightened to provide the complete assembly 10.

Please amend paragraph 22 as follows:

The second ~~way~~method of assembling the components is to be ~~pre-assemble~~preassemble the nut 32 onto the locating ~~means~~feature 24, align the window regulator housing 12, ~~the~~ door panel 14 and ~~the~~ window regulator motor 16, ~~and to~~ sequentially insert the locating ~~means~~feature 24 through the holes 16A, 14A and 12A, and tighten via ~~the~~ slot 32 to secure the assembly 10 in one operation. Using the latter ~~second~~ method is particularly useful when initially assembling the assembly 10.

Please amend paragraph 23 as follows:

The ~~former~~first method is particularly useful when the window regulator motor 16 requires removal or replacement ~~whereupon the~~The nut 32 can be removed, ~~and~~ the window regulator motor 16 ~~also can be~~ removed, and a replacement window regulator motor can then be assembled without having to move the locating ~~means~~feature 24 from ~~the~~ holes 14A and 12A. Thus, it is not required to disturb the connection between the door panel 14 and the window regulator housing 12.

Please amend paragraph 24 as follows:

~~In particular it should be note from Figure 1 that the~~ The small diameter portion d is a relatively snug fit within ~~the~~ parallel sided portion 18, and ~~also~~ that the large diameter portion D is a relatively snug fit within ~~the~~ hole 16A. Thus, by controlling the dimensions and manufacturing tolerances on the large and small diameter portions D,d and also on the holes 16A and ~~the~~ parallel sided portion 18, it is possible to align the window regulator housing 12 with the window regulator motor 16 relatively accurately. In particular, it is often necessary to align these two components 12, 16 relative to each other more accurately than they are aligned relative to the door panel 14, and it will be noted from ~~figure~~ Figure 1 that ~~the~~ hole 14A is of significantly larger diameter than hole 12A. Thus, under certain installations the dimensional accuracy of ~~the~~ hole 14A can be relaxed thereby providing to provide a cheaper assembly 10.

Please amend paragraph 25 as follows:

The assembly 10 of the window regulator motor 16, door panel 14 and window regulator housing 12 as described above includes a single locating ~~means~~ feature 24. However, preferably, a plurality of locating ~~means~~ features 24 can be assembled into ~~the~~ appropriate holes to provide the assembly 10. Preferably two or three locating ~~means~~ features 24 are used. Where a plurality of locating ~~means~~ features 24 are used at spaced part locations, ~~then these~~ the locating ~~means~~ features 24 ensure that the first, second and third components cannot move relative to each other.

Please amend paragraph 26 as follows:

However, it should be noted that where only a single locating ~~means~~ features 24 is used, then further devices such as tabs, pips, recesses, pins etc. can be used to ensure the first, second and third components are fixed relative to each other, in particular to ensure that none of the first, second or third components can be rotated about the axis of the fixing ~~means~~ features 24.

Please amend paragraph 27 as follows:

Whilst the locating ~~means~~feature 24 has been provided with a drive formation in the form of a slot 31, alternatively drive formations such as hexagonal recesses, hexagonal projections, Torx formations, or other suitable drive formations can be provided.

Please amend paragraph 28 as follows:

~~With reference to Figures 3A and 3B there is shown~~show an alternative form of ~~the~~the assembly 10 according to the present invention in which the tapered threaded portion 28 of Figure 2 has been replaced with a rivet 128 which ~~is~~is integral with the locating ~~means~~feature 124. Figure 3A shows the rivet 128 ~~having just been inserted through~~the door panel 14 and ~~the~~the window regulator housing 12, and Figure 3B shows the rivet 128 ~~having been peened over such that~~the door panel 14, ~~the~~the window regulator motor 16 and ~~the~~the locating ~~means~~feature 124 are retained as a ~~sub-assembly~~subassembly.

Please amend paragraph 29 as follows:

Furthermore, it is possible to seal the assembly 10 e.g., by providing a seal between the window regulator housing 12 and the door panel 14, or alternatively by providing a seal between the window regulator motor 16 and the door panel 14.

Please amend paragraph 30 as follows:

In further embodiments, it is also possible to provide spring washers or other pre-load devices, in particular between the nut 32 and the window regulator motor 16.

Please amend paragraph 31 as follows:

Whilst it is possible to provide an assembly 10 according to the present invention ~~comprising~~including components other than door panels 14, window regulator mechanisms and window regulator motors 16, the invention is particularly applicable to the automotive industry. In ~~and~~in particular, the first component can be a body pressing panel or other sheet metal component of a car.

Please amend the abstract as follows:

An assembly ~~including~~includes a first, second and third component having ~~respectives~~respective first, second and third holes, ~~the~~. The assembly further ~~including~~includes a locating ~~means~~feature assembled into the first, second and third holes, the locating ~~means~~having at least a small diameter cylindrical portion which is concentric relative to ~~and~~ and a large diameter cylindrical portion ~~to~~that provide a shoulder, ~~the~~. The locating ~~means~~feature further ~~including~~includes a fixing portion proximate ~~near~~ the small diameter portion for securing ~~to~~ to secure the second component relative to the assembly and a fixing portion proximate ~~near~~ the large diameter portion for securing ~~to~~ to secure the third component relative to the assembly, ~~in which the~~. The small diameter cylindrical portion is located in the second hole ~~in order~~ to align the locating ~~means~~feature relative to the second component, and ~~[[a]]~~the large diameter portion is located in the third hole ~~in order~~ to align the locating ~~means~~features relative to the third component, thereby aligning ~~the~~. The second component ~~is aligned~~ relative to the third component, ~~in which~~and the first component is situated between the second and third ~~component~~components and also between the shoulder and the second component.